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GSI-2 Development Systems

In support of:

Software 1.0

Hardware GSI-2C

12/26/02

GSI-2 Development Systems:

Gunn Systems is happy to quote any hardware or software changes needed for the GSI-2 to meet specific customer requirements. We also realize that some customers are going to want to do their own development. For the engineers who need to make changes to the GSI-2 platform for a specific application, the **GSI-2 Software Development System** and the **GSI-2 Hardware Development System** are available.

While all of the GSI-2 Software and Hardware design files are released as GPL (General Public License—see <http://www.gnu.org/copyleft/gpl.html>), unfortunately, the development software is not GPL and only portions of it are free.

If your software needs are simple, you may be able to use the freely available assemblers for simple software programs. For more detailed programming, or changes to Simple-Rulez (the GSI-2 logic entry and processing environment), we would recommend purchasing the C Compiler (see the *Software Development System* section).

If you need the change the hardware, you can use Gerber editors for very simple PC board changes; otherwise, the Eagle PC Board software from Eagle is highly recommended (see the *Hardware Development System* section).

Software Development System

A Software Development System allows the customer to make custom programs with ultimate flexibility.

For programming the GSI-2, you can use a freely available assembler, or a commercial C compiler (retail \$199). Either development system will require the programmer utility.

The GSI-2 Simple-Rulez software was developed with the C compiler, and we recommend buying the C compiler for most needs. The assembler is good for simple needs or where speed needs to be maximized.

Freely available development software for the 68HC08 that works well with the GSI-2:

- **MCUez Assembler.** An assembler (MCUez) is available from Motorola at this link:
 - <http://e-www.motorola.com/collateral/MCUEZIDE.html>

- **Programmer Utility.** In order to program the flash on the microprocessor, you will need a programmer utility called *PROG08SZ*. You can get this utility by registering at P&E Microsystems:
 - <http://www.pemicro.com/ics08/index.html#ICS>
- **Debugger / Assembler / IDE / Simulator (optional).** P&E Microsystems also makes a very nice debugger, assembler / IDE, and simulator for the 68HC08 that may be download as well. After registering with P&E (at no cost), the download is free. P&E is found at the following website:
 - <http://www.pemicro.com>
- **Sample Code (optional).** Finally, to get started, you can download a demo (Hello World) program written in assembly (developed and compiled with the Motorola MCUEZ assembler) for the GSI-2 controller. This program demonstrates the serial port usage and LCD & Selector Knob routines in assembly. The demo (with source code released under GPL) is at:
 - http://www.gunnsys.com/GSI2/GSI2_Hello.zip

NOTE: The assembly support for the GSI-2 is limited to the serial and LCD examples above. Full support with drivers requires the C compiler to be purchased. You can use the free assemblers, if you wish, to write your own hardware drivers.

Recommended Commercial Development Package

- **Recommended C Compiler.** For more involved projects where custom software is required, a good commercial-grade C compiler called ICC08 is available (retail \$199). Download a 30 day evaluation copy at:
 - <http://www.imagecraft.com/software/>
- **GSI-2 Simple-Rulez Source.** You can download the source code to Simple-Rulez, with hardware drivers all written in C from Gunn Systems. It is released as GPL, and available at:
 - <http://www.gunnsys.com/GSI-2/download/software/GSI-2-Firm.zip>

Hardware Development System

For modifying the GSI-2 hardware (PC board), there are two options. For simple changes, a freely available Gerber file editor is available. For more complicated hardware changes, the Eagle PCB program can be purchased. The design files used to develop the GSI-2 Hardware are available and released under GPL.

- **Eagle PCB Software.** The Eagle PCB Standard version is available for \$298 (PCB and Schematic editors), and is available on Windows and Linux platforms. You can download an evaluation version of Eagle at:
 - <http://www.cadsoft.de/info.htm>
- **Gerber File Editors.** For very simple changes, Gerber File editors are available at these links:
 - <http://sftp.rsi-inc.com:8080/demos/Download/camcad.jsp>
 - <http://www.rsi-inc.com/Downloads/shareware.html#CCShare>
 - http://www.lavenir.com/Products/cam_software.html
- **GSI-2 Design Files.** The Eagle and Gerber Design files for the GSI-2 unit (Released as GPL) are available at:
 - <http://www.gunnsys.com/GSI-2/download/hardware/GSI2-C-CAD.zip>

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